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Abstract of

PUT A SEAT AT THE TABLE FOR THE JOINT FORCE FIRES COORDINATOR

The Gulf War demonstrated leaps in technology and the corresponding doctrine that facilitated the rapid destruction of the Iraqi Army. Both the Army and Air Force made changes to their doctrine in the aftermath of the Gulf based on their lessons learned. Since 1991, these doctrines have continued to evolve based on service concerns.

Joint Publication 3-09, published in 1998, captured many of these changes in the Joint doctrine. One of the most significant was the creation of the optional staff member of the J-3, know as the Joint Force Fires Coordinator. The continued inter-service rivalry, technological improvements and lack of agreement provide a base to argue for a further change to Joint Doctrine that makes the JFFC a permanent member of the J-3 staff.

This paper traces the development of doctrine from the Army and the Air Force, the publication of JP 3-09, and discusses the need for a permanent JFFC.

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By

Jeff Collins

Major, U.S. Army

A paper submitted to the Faculty of the Naval War College in partial satisfaction of the requirements of the Department of Joint Military Operations.

The contents of this paper reflect my own personal views and are not necessarily endorsed by the Naval War College or the Department of the Navy.

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Introduction

Joint Operations are a tricky business. Nowhere is this more evident than in the arena of Joint Operational Fires. Service component rivalries and emerging and fielded technological improvements will only continue to strain these relationships. The most recent publication, Joint Publication 3-09 Joint Fire Support, addresses many of these concerns but fails to implement doctrine that resolves several of the most controversial issues.

It is in the area of Joint Fires that this paper will focus. More specifically, I will look at the current publications and research that address Joint Fire Support and will attempt to show the improvements that have been made in Joint Doctrine since the end of the Gulf War. I will then review some of the current service concerns and recommend a path to resolve some of the more contentious issues that face the Joint Force Commander as he deals with the service components.

Beginning with a look at the lessons learned from Desert Storm, I will trace the development of the current doctrine to illuminate the differing service concerns. Next, I'll explore the establishment of the Joint Fires Coordinator as a special staff officer on the J-3 Staff. I'll expand the doctrinal arguments over Fire Support Coordination Measures, explore the Joint Force Fires Coordinator, and analyze coordination and control of deep-attack assets. Finally, I'll look at the Joint Targeting Board. After an analysis of the current situation, I'll make specific recommendations for the roles of the Joint Fires Coordinator and the Joint Fires Element. Due to the length constraints of this paper, only Army and Air Force issues will be addressed.

Historical Analysis: Gulf War

"The Persian Gulf War provided a glimpse of the dramatic changes in warfare and results of rapid evolutions in technology." This massive understatement offers a suitable backdrop for the Joint Fires issues that resulted from our experience in the Gulf. The employment of precision munitions, the introduction of the AH-64 Apache, and the demonstrated range and effectiveness of the Army Tactical Missile System (ATACMS) clearly articulated the operational reach, accuracy, and lethality of the United States. These technological improvements amplified issues over command and control, the Air Tasking Order, and the Fire Support Coordination Line. Whilst many of these issues suffer from rampant parochialism, others suffer from misunderstanding. The link that ties them together, namely Joint Fires doctrine, provides an area for much improvement. Despite the fact that the Gulf was a triumphant success on many levels, it is quite clear from the historical literature that, as a campaign, the Gulf War had its faults.

Command and Control: Many Joint Fires problems arose from the setup of the command and control (C²) relationships. For example, the fact that the targeting cell of the Ninth Air Force, under LTG Horner, was composed entirely of Air Force officers caused troubles with the other services who perceived their lack of inclusion as a slight.² The failure to include the other services drew attention to the composition of the targeting cell. Likewise, General Schwarzkopf's decision to "dual hat" himself as the Joint Force Commander (JFC) and the Joint Force Land Component Commander (JFLCC) created an imbalance between the Joint Force Air Component Commander (JFACC) and the Army ground commanders by removing their link to the JFC, the JFLCC. This C² relationship put the JFACC on unequal footing

with the de facto ground commanders. This "resulted in tension between ground commanders, who felt their needs were not being met, and the JFACC and his staff, who were responding to the theater commander's direction."

Ground Targets and the Air Tasking Order: Ground commanders were nominating targets that were subsequently not added to the Air Tasking Order (ATO). Normally, the JFLCC would field these concerns, but because Schwarzkopf was also the JFC, a link in the chain was missing. Ground commanders wanted to attack front-line artillery systems they would directly face. Schwarzkopf was more enamored with precision strikes against tanks. JFACC planners complained that ground commanders' targets were old or had already been disabled. The JFACC felt he was meeting the intent of the JFC by attacking targets that had been directed and approved by the JFC. Neither component understood what the other was trying to do. Moreover, what feedback loop was available to the ground commanders? Did the JFACC planners provide an explanation about the reason their targets were not on the ATO? This explanation and dialog may have eased some anxiety and gone a long way toward establishing mutual trust. Furthermore, this information could have redirected the ground targeting efforts, instead of letting them spin their wheels on old targets or targets that the CINC would not attack. If an extant organization on the JFC's staff was specifically charged with the mission to coordinate Joint Fires, these issues may have been less contentious, and the ground commanders could have avoided a possible confrontation with the JFC over an issue that the staff could solve.

Fire Support Coordination Line (FSCL): The purpose of the FSCL is to facilitate expeditious attack of targets of opportunity. ⁵ This was often not the case in the Gulf. "Due, in part, to the JFACC's influence, the FSCL resembled a boundary [a restrictive measure]."6 The requirement by the JFC to clear fires beyond the FSCL with the JFACC reduced the effectiveness and responsiveness of ground fires. One particular fire mission during the Gulf War took 6 hours simply to clear the airspace. While the coordination of Joint Fires is a limited success story, the amount of time required to provide them is not. As a result of mounting frustrations with the JFACC and the targeting effort, the XVIII Airborne Corps commander succeeded in his request to move the FSCL beyond the Euphrates River⁸ during the closing hours of the ground war. This action allowed his corps freedom of action to pursue attacks throughout the depth of his Area of Responsibility (AOR) without cumbersome coordination with the JFACC. The Gulf War Air Power Study concludes that this action "hamper[ed] air power's ability to destroy escaping Iraqi ground forces until the FSCL was finally pulled back after several hours." During these critical hours, it is argued, the Iraqi's were afforded sanctuary, allowing many of the Republican Guard units to escape. The movement of the FSCL, however, did not preclude the JFACC from interdicting the escape routes to the north over the Euphrates. Moreover, the JFACC certainly had the assets and time prior to the ground war to shape the battlespace to prevent the massive movement North. Considering that the Republican Guard was considered an operational center of gravity for Iraq, allowing them to escape because of Fire Support Coordination Measures (FSCMs) is viewed by many as a huge mistake. The argument over the FSCL movement is valid due to the fact that the XVIII Corps Commander could not attack simultaneously throughout the depth that his new AOR encompassed to achieve the same results that an

integrated joint interdiction operation might have. It does, however, show that closer coordination would have yielded better results from both parties. Further, "[t]here was no single agency that could ensure that the FSCL was moved in conjunction with the overall scheme of maneuver." Had an agency existed that was solely responsible for the management of FSCMs, the sanctuary afforded the Republican Guard could have been avoided.

Thus, by briefly delving into the Gulf War and conducting a cursory analysis, several problems emerge. The C2, target inclusion in the ATO, and FSCL issues are recurring themes that are still seen today. Not only has doctrine failed to adequately address these issues, but also the services have failed to reach common agreement.

Service Concerns

Since the Gulf War, each service has updated its doctrine to implement lessons learned from the Gulf and to addresses areas of concern. Each service guards its property and missions with vigor and espouses respective service beliefs as doctrine. Each is concerned that another will intrude upon its sacred ground. Worse yet, this intrusion may cause a loss of budget, the equalizing force within the Department of Defense.

At the operational level, the issues do not revolve chiefly around budgetary issues. Space also becomes one of the guiding principles to protect. Because "...the deeper we go into the theater [with operational fires], the more likely we are to see conflict between those services that have control over operational fires." MAJ Bradley's prescient thoughts in 1988 certainly held true. What we find today is an argument, at its core, over who controls the deep fight. The Air Force wants to proceed its own way, while the Army has a different

idea about how to conduct the deep fight. The innovations in technology brought out in the Gulf War have become increasingly complicated over time as more and better systems from both services come on-line.

Air Force: The Air Force's doctrinal capstone is Air Force Manual (AFM) 1-1. This document is portrayed by the Air Force as "...an airman's doctrine written by air power scholars for use by air power practitioners." From it, the Air Force traces its development from a supporting arm of the Army into its current form, viewing its major roles as aerospace control, force application, force enhancement, and force support. The JFACC Primer, an Air Force supplement to AFM 1-1, takes the doctrine further and describes the role of the JFACC in joint operations. The Primer addresses the Air Force concerns, the 'alternative' perspective, and the combined solution. From these documents, the Air Force advocates its position as a decisive force capable of decisive operations.

Such changes in doctrine have not gone unnoticed. Some note that "…in forsaking the division between tactical and strategic levels of organizing, training, and equipping forces, the Air Force eliminated distinctions among airframes and major commands, referring collectively to [them as]combat air."¹⁴ More specifically, it eliminated the operational level of war. The Air Force doctrine speaks of tactical application of airpower, Close Air Support (CAS), only in passing. The major focus of the Air Force is at the strategic level. Battlefield Air Interdiction (BAI) disappeared from Air Force doctrine without leaving the ground component a resource to fill the gap. The JFACC holds tightly to the apportionment of sorties with reverence. While this holds true to the principle of Unity of Effort, it does much to undermine the trust between the services.

To accomplish the mission, according to the Air Force, centralized control by the JFACC is paramount. In order to maximize their effects, "[c]entralized control of air assets has long been recognized as a tenet of campaign planning." Control of Air Force assets by non-air organizations breaks the doctrinal paradigm. "It makes no sense for the ground component commander to decide the targets, timing, and priorities for airpower in engagements unrelated to the ground battle." Clearly, the Air Force sees itself as a decisive strategic component that should be managed by its own people.

Army: The Army counters with equal rhetoric. "Only land forces can exercise direct continuing, discriminate, and comprehensive control over land, people, and resources." This approach leads to the conclusion that control of the land cannot be maintained from the air or sea. Field Manual (FM) 3-0 further argues"...with their inherent qualities of on-the-ground presence and situational understanding, Army forces make permanent the otherwise temporary effects of fires alone." Unmistakably, the implication here is that the effects of fires from the Air Force are only temporary. Finally, the coup de grâce of doctrine; "Army forces are the decisive forces for sustained land combat, war termination, and postwar stability." This stance does not leave very much room for compromise.

The Army later tries a more conciliatory approach to tie the Air Force into its dogma: "Fires from Air Force systems create the conditions for decisive land operations." Their fires support the ground commander to achieve his decisive role. Lastly, the Army tries to show that the services are interdependent: "Firepower magnifies the effects of maneuver…maneuver creates the conditions for the effective use of firepower. One without the other makes neither decisive." This pro-ground stance clearly shows that the Army

believes itself to be the decisive force and that the JFACC should support the ground commander with operational fires.

Both the Air Force and Army doctrines, despite their vigorous autonomy, have common ground. Both realize they are interdependent and that maximum synergy can be attained through joint application of firepower. The differences are substantial but don't stop each other when it is time to fight. What is lacking is a way to pull them together, to synchronize their effects to the fullest capacity.

Doctrinal Issues:

Fire Support Coordination Line (FSCL): Joint Fires issues continue to beguile our military. Much work and ink have gone into trying to resolve these issues. The FSCL remains one of the most argumentative. The Army's newest doctrine, FM 3, notes, "FSCLs facilitate the expeditious attack of surface targets of opportunity beyond the coordinating measure...[f]orces attacking targets beyond an FSCL must inform all affected commanders in enough time to allow necessary action to avoid fratricide." ²² This move is a step in the right direction.

Some creative alternatives have been offered to fix the problems with the FSCL; MAJ Barbee provides interesting insight into several of them. In particular, his assessment of the value of digitization in improving situational awareness for the commander is extremely valuable.²³ As the Total Force becomes more digitized, knowledge of where all friendly elements are located will lead to better management of Fire Support Coordination Measures (FSCMs) and better employment of Joint Fires. In his recommendations, Barbee concludes that the JFACC should be the coordinating authority for fires between the FSCL and the

forward boundary [of the land component].²⁴ This argument, however, assumes that the JFACC is the only commander with interests in the area. He clearly is not. MAJ D'Amico, likewise, argues to "[a]ppoint the JFACC as the coordination authority for operational fires beyond the FSCL to ensure unity of effort, and avoid duplication and fratricide."²⁵

The JFACC Primer articulates the position of the Air Force somewhat differently. It argues that if synchronization of fires below the FSCL is critical to the Land Component Commander (LCC), then is it also critical beyond the FSCL. ²⁶ This simple issue has huge implications. In order for fires to be effective, they must be applied by the most appropriate system and in a timely manner. Coordinating simple FSCMs is paramount for success. Clearly we have yet to solve the issue. What remains missing is a better answer to determining the entity that ultimately controls the FSCL and how the solution can be implemented to provide maximum benefits for the JFC and all of his subordinates.

Joint Force Fires Coordinator (JFFC): In the aftermath of the Gulf War, a lot of time and effort was devoted to analyzing what did and did not go very well. Much of the research yielded similar results. The concept of providing a professional fire supporter solely focused on Joint Fires to the JFC staff gained momentum and eventually found its way into the Joint doctrine. Many saw the applicability of having a dedicated staff officer working in the J-3. Moreover, the criticality of Operational Fires to the JFC was reason enough to make the change. Given that the Army was the proponent for the rewrite of the Joint doctrine on fire support, it should come as no surprise that this change was done.

Joint Publication 3-09 was released in 1998 with significant improvements to Joint Fire Support. Most important, in the context of this paper, is the establishment of the Joint

Force Fires Coordinator (JFFC) as an *optional* [emphasis added] special staff officer on the J-3's staff. The new doctrine allowed for a Joint Fires Element (JFE), headed by the JFFC, to provide fire support planning and coordination for the J-3. The JFE provides staff recommendations to the JFC, develops plans and orders, manages FSCMs, and runs the Joint Targeting Coordination Board.²⁸ The inclusion of the JFFC and the JFE acknowledged both the importance of Joint Fires and the running disagreements over how to address them. It merely provided, an option rather than a mandate, for a JFC-level staff to coordinate Joint Fires. It articulated the solutions to the problem, but it did not fix them.

Despite this brand new Joint Doctrine, several Joint Fires issues remain. Service primacy and doctrine still eclipse the purple battlefield. Coordination, control of assets, and the Joint targeting effort remain touchy issues.

Control vs Coordination: To resolve many of the inherent issues in Joint Fires (e.g. targeting, assets, air space coordination, etc.), the JFLCC sends a Battle Coordination Detachment (BCD) to provide direct liaison to the JFACC at the Air Operations Center. The BCD's role includes informing the JFACC of the JFLCC's planned operations. "He is not requesting approval." While this tough-guy language sounds ominous, the BCD does perform an important task. Acting as liaison, the BCD provides a crucial interface to the JFACC, ensuring that integration is not an afterthought. Although this lateral connectivity reaps many rewards for both components, it cannot force one to do the other's bidding.

The Air Force continues to argue that it should have control over anything that flies. It controls air assets with the JFACC, whose ability to coordinate airspace is unmatched. Its

willingness to coordinate all things big and small in said airspace is, likewise, unmatched. The Air Force believes that it has the capacity to better use the operational assets of the JFLCC, namely the Apache and the ATACMS, to better facilitate its decisive campaign.

Inasmuch as an infantryman shouldn't plan to fly a plane into battle, the JFACC shouldn't plan to have control over an Apache or ATACMS. The Apache and ATACMS have tactical roles in addition to their operational missions. The Apache is a necessary weapon system for the close fight as well as the operational fight. Timely attacks by Apaches at the decisive point give the maneuver commander a decided advantage that he cannot be without. ATACMS should be thought of and planned as a munition, not as a separate weapon system. The same launcher that fires the ATACMS missile in the deep fight, fires the Multiple Launch Rocket System (MLRS) rockets in the close fight. If these assets were cut to the JFACC, the ground commander would lose two of his best assets for the decisive close fight. These multi-purpose assets have multiple masters and require coordination at the highest level to ensure that the JFC's intent is met. This does not mean that the JFACC should be without support from the deep assets of the JFLCC; he just should not own them.

Joint Targeting Coordination Board (JTCB): "JTCB as a planning support function assists components in following the intent of JFCs in executing operations by preparing targeting guidance, refining joint target lists, and reviewing target information." This is where the crucial planning for fire support at the Joint Task Force level happens. Normally chaired by the J-3, this body integrates the targeting effort for the JFC. The JFC can easily determine if his guidance for fires is effective or is being followed by reviewing the resulting

products of this meeting. More importantly, the JTCB functions to synchronize the effects of Joint Fires for the JFC.

The growth of the JTCB from the Gulf War to its form today has been phenomenal, but room for improvement exists. The notion of having the JTCB subordinate to the JFACC is poorly formulated. ³² Operational Fires are not limited to air and artillery alone. The Joint Force brings other lethal and non-lethal fires into play that may be overlooked if one component has primacy over the other. The JFACC and the JFLCC should nominate targets to the JTCB, not the other way around. The JTCB can provide this service only if it has visibility of all Joint Fire assets and has a dedicated Fire Supporter who understands the system making recommendations to the JFC.

Conclusion

Joint Fire Support Doctrine has come a long way since the Gulf War. The implementation of the JFACC concept, as well as the demonstrated technological improvements in air and ground weapons systems, has caused both the Army and Air Force to relook their doctrines in the twilight of Desert Storm. The range and versatility of such systems as the Apache and ATACMS lengthened the operational reach of the ground component commander, causing more interservice angst over turf and mission. Both services pursued individual doctrines and developed refined concepts and methods to employ forces and functions, leaving the Joint force with an imperfect, unsynchronized solution.

The development of Joint Doctrine also has continued to evolve. The latest edition of Joint Fire Support doctrine takes giant strides forward in addressing some of the key issues, such as FSCM management and staffing in the J-3. The introduction of the JFFC as an

optional member of the J-3 is a step in the right direction. This inclusion of a Fire Supporter to synchronize the assets and effects of Joint Fires for the JFC has tremendous potential.

This potential was successfully demonstrated during Fleet Battle Experiment India, where the JFFC and his staff, the Joint Fires Element (JFE), "resolved disputes among lower levels in the shared use of tactical assets." Issues such as control of assets and FSCM management between components, and the continuing development of technology that stretches the battlespace, will only serve to blur the complicated lines between missions of the services. Joint Publication 3-09 does not solve every issue. Doctrine must continue to evolve to match these changes with innovations of its own that capture and amplify the strengths of Joint force.

Recommendations:

Joint Force Fires Coordinator (JFFC): Joint Fires require a dedicated person, working for the JFC, who coordinates the effort across the Joint Area of Operations. The JFFC is the right person for this job. He is clearly in a position to see where the land and air components are located. More importantly, he is nearer to the JFC and, acting as the JFC's advocate, can interpret where FSCMs should be placed to better support the JFC's intent for operational fires. The JFFC is ideally positioned to ensure that the interests of both the Air Force and the Army are met and are rolled under the umbrella of the guidance of the JFC. Establishing a permanent J-3 staff officer, the JFFC, who works these issues will lead to true synchronization and synergy.

We will likely employ operational fires in some form every time we stand up a Joint Task Force. Leaving fires to the already overworked J-3 is a bad idea; the J-3 has too many other concerns on his mind to focus on the fires issue also. Having another person who

works exclusively on fires is a better answer. This will go a long way to resolving some of the issues discussed before. At a minimum, I propose that the JFFC should be a permanent position, should have Joint Professional Military Education at one of the service schools, should have a background in either JFACC or Battlefield Coordination Detachment (BCD) operations, and should be in the grade of O6.

Who is the JFFC? Does is really matter? In 1988, MAJ Bradley argued that, like the JFACC, the JFFC should come from the component with the preponderance of Joint Fires.³⁴ While this may be tough to quantify- missiles versus rounds or units versus number of personnel-the point is valid. The service of the JFFC is less important than the experience that he brings to the table. The JFFC simply must have the requisite background and be able to articulate the guidance from the JFC.

Where should he work? I echo the sentiments of LTC Argo on his recommendation for the JFFC, namely that the JFFC should be co-located with the J-3 to maintain operational awareness. ³⁵ Positioning is the key to success. This location puts him in the best position to influence the direction of the operational fires for the JFC. The JFE must have the capability to interface with the JFLCC and the JFACC to ensure synchronization of Joint Fire Support is affected.

What should he do? Some think that "[t]aking LCC intent for fighting ground war close and deep, JFFCs, via JTCBs, must integrate it with air campaigns designed by the JFACCs." I disagree. The JFFC must ensure that the LCC and the ACC's fires are integrated toward the JFC's intent, not toward their own agendas. The purpose of having someone at the JFC level is to integrate the efforts of the components for maximum effect, ensuring that the JFC's intent is followed.

Fire Support Coordination Measures (FSCMs): The JFFC should be the coordinator of FSCMs for the JFC. All requests to move FSCMs should flow through the JFFC. With his positioning and his understanding of the JFCs intent, he is the ideal arbiter of this issue. Direct coordination should still be authorized, but in case of disagreement or confusion, the JFFC should be the coordination authority.

Joint Targeting Coordination Board (JTCB): The JFFC should chair and run the JTCB. From this forum, the JFFC can clearly articulate the intent of the JFC. He can provide oversight on targets and apportionment, ensuring that the air and ground components' needs are met within the confines of the JFC's guidance. He can update attack guidance criteria, target selection standards, and monitor the ATO.

Battlefield Air Interdiction (BAI): Allocating more sorties for planning to the ground commander would fill the void between the tactical and strategic levels that Air Force doctrine does not adequately address. The JFACC, through the BCD and the ATO, will retain visibility of these assets and can always go through the JFC if a problem arises. The ground commander's staff may develop a target that was not considered or located by the JFACC. You don't have to fly a plane to determine a good target for air attack.

Furthermore, by synchronizing the air interdiction missions with ground operational maneuvers as D'Amico suggests³⁷, the JFC, through his JFFC, will achieve more synergistic effects. This is yet another mission for the JFFC: he must ensure that fires are applied according to the JFC's intent and are applied throughout the depth of the battlefield.

Mission Type Orders: To address service concerns over control, I propose that Mission Type Orders be required and managed by the JFFC. The JFC issues mission type orders that say what to do, but not how to do it. In the same vein, the JFLCC can request Air Interdiction using the mission type approach. He can seek to interdict the tank reserve by requesting targeting against its ability to influence the direct fight. This gives the JFACC the intent of the JFLCC without prescribing how to integrate operational fires: function over formation. This type of target request will be more readily received, as it does not tell the JFACC how to 'suck the egg', while allowing him to synchronize fires with maneuver. Likewise, the JFACC can request Apache and ATACMS support from the JFLCC for his deep attacks. Control is not necessary if coordination is made. The JFFC is the coordinator that makes this happen. He receives the request from one component and ensures, within the JFC's guidance, that the mission is serviced by the other component.

Army-Air Force Warfighter Talks: "Since the Gulf War...senior leaders of our respective services have met to discuss lessons learned as well as opportunities for improving joint operations." These talks have produced fruitful results as outlined by Generals Reimer and Fogleman. Dialogue is the most effective way to ensure we are working toward a better understanding of the problems and better solutions to the issues. These types of talks need to spread down to the operator level. Theater Commanders in Chief should sponsor these as well. The permanent JFFC is the ideal coordinator for this effort.

NOTES

¹ Dennis J. Reimer and Ronald R. Fogleman, "Joint Warfare and the Army-Air Force Team," <u>Joint Forces Quarterly</u>, (Spring, 1996), 10.

³ Thomas A. Kearney and Eliot A. Cohen, <u>Gulf War Air Power Survey Summary Report</u>. (Washington, D.C.: U.S. Government Printing Office: 1993), 152.

⁶ Paul T. Johnson, "Is Interservice Coordination Imperative Prior to Employing Fires in the Tactical Zone." (Fort Leavenworth, Kansas: US Command and General Staff College: 1996), 57.

² Reamer A. Argo, "Force XXI Precision Engagement: The Need for a Joint Force Fire Coordinator." (Fort Leavenworth, Kansas: U.S. Command and General Staff College, School of Advanced Military Studies: 1997), 27.

⁴ Ibid, 155.

⁵ U.S. Joint Staff. <u>Joint Publication 3-09: Doctrine for Joint Fire Support.</u> (Washington, D.C.: Government Printing Office. 12 May 1998), A-2.

⁷ Ibid. 32.

⁸ Kearney and Cohen, 157.

⁹ Ibid, 157.

¹⁰ Leonard S. Moskal, "The Role of ATACMS in JFACC Planned Deep Operations." (Fort Leavenworth, Kansas: US Command and General Staff College, School of Advanced Military Studies: 1995), 40.

¹¹ Michael J. Bradley, "Operational Fires, Do They Require a FSCOORD?" (Fort Leavenworth, Kansas: U.S. Command and General Staff College, School of Advanced Military Studies: 1989), 2.

¹² U.S. Department of the Air Force. <u>Air Force Manual 1-1: Basic Aerospace Doctrine of the United States Air Force.</u> (Washington D.C.: Department of the Air Force: 1992), vii.

¹³ Ibid. 6.

¹⁴ Albert Hochevar and others, "Deep Strike: The Evolving Face of War." <u>Joint Forces Quarterly</u>, (Autumn, 1995), 81.

¹⁵ Ibid, 85.

¹⁶ John T. Correll,, "Joint Fire Drill." <u>Air Force Magazine</u>, http://www.afa.org/magazine/editorial/07edit98.html>14 January 2002.

¹⁷ U.S. Department of the Army. <u>FM 3-0: Operations.</u> (Washington, D.C.: Headquarters Department of the Army: June 2001). 1-6.

¹⁸ Ibid.

¹⁹ Ibid, 1-11.

²⁰ Ibid, 2-7.

²¹ Ibid, 4-6.

²² Ibid, 2-21.

²³ Michael J. Barbee, "Minimizing Coordination Problems Between the JFACC and JFLCC in the Coordination of Joint Fires Between the FSCL and the Land Component Forward Boundary," (Fort Leavenworth, Kansas: U.S. Command and General Staff College: 1997), 62.

²⁴ Ibid, 69.

²⁵ Robert D'Amico, "Joint Fires Coordination: Service Specialties and Boundary Challenges." (U.S. Naval War College, Newport RI: 1997), 14.

²⁶ U.S. Department of the Air Force, <u>JFACC Primer</u>, (Washington, D.C.: Headquarters, U.S. Air Force, Deputy Chief of Staff, Plans and Operations. February 1994), 33.

²⁷ Argo, 44.

²⁸ Joint Publication 3-09, I-5.

²⁹ Barbee, 43.

³⁰ Bradley, 5.

³¹ Reimer and Fogelman, 12.

³² Mark H. Ayers, "The Answer Is? Friction Over Who Should Plan & Control Joint Fires Beyond the FSCL" (Fort Leavenworth, Kansas: U.S. Army Command and General Staff College: 1997), 30.

³³ U.S. Naval War College. "Fleet Battle Experiment India." Joint Military Operations Department: (October 2001), 30.

³⁴ Bradley, 4.

³⁵ Argo, 44.

³⁶ Hochevar, 85.

³⁷ D'Amico, 4.

³⁸ Reimer and Fogelman, 10.

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